

A high-level monthly briefing on operations and activities at the U.S. Department of Energy's Idaho National Engineering and Environmental Laboratory – Home of Science and Engineering Solutions. Work at the lab supports the Department's business lines of environmental quality, energy resources, national security and science.

■ ENERGY RESOURCES – INEEL Supports Upcoming Clean Energy Conference

The INEEL will be both a sponsor and an active participant in the upcoming Harvesting Clean Energy Conference III, being held in conjunction with the eighth annual Idaho Ag Summit, Feb. 10-11. The two-day event will be staged at the Centre on the Grove in Boise. The conference brings together the agriculture and energy industries to explore rural economic opportunities in clean energy production. The INEEL will have a display focusing on laboratory partnerships with universities and industry aimed at making critical advancements in the fields of agriculture-based bioenergy and bioproducts.

■ ENVIRONMENTAL QUALITY – Swarming Miniature Robots Being Put to Work

Swarms of mini-robots could spare humans from risky and boring tasks, INEEL scientists say. They've created a robotic horde programmed to seek out hazardous chemical spills. When one happens upon a puddle, it signals its teammates by chirping. The rest of the flock heeds the call, surrounding the spill and alerting their human operator. Although the robots seem futuristic, their inspiration comes from a lowly creature – the ant. Ants' complex behaviors – such as traveling along in ordered trails – arise from each individual's response to the scent of its neighbors. Similarly, "the robots' ability to do collective tasks arises from very simple, layered behaviors," explains INEEL computer scientist David Bruemmer.

■ NATIONAL SECURITY – Emergency Response Teams Get Technology Boost

An engineer at the INEEL has designed a nifty tool to help emergency response team members "see" a little better. The Hazmat Cam is a lightweight wireless video camera system that emergency team members carry to an incident scene. Housed in a tough, waterproof flashlight body, the camera system sends back real-time images to a video monitor or computer at a command post located up to several miles from the incident area. Hazmat Cam's true-diversity receiver seeks the strongest signal from each of the three antennas. It completes this scan over 1,000 times per second, resulting in clear, more reliable image even under less-than-perfect conditions.

■ SCIENCE – Idaho Student Participates in JASON Science Project

It's not every day that a student from Idaho is able to spend a week of school on exotic islands of the Pacific studying kelp forests, California sea lions and elephant seals. But, for Joanne Baldwin, a ninth-grade student from Coeur d'Alene, the dream field trip is becoming reality. Baldwin has been chosen to participate in JASON XIV: From Shore to Sea, Feb. 3-7, at California's Channel Islands. Baldwin, nominated by JASON Idaho and the INEEL, was selected as one of 28 out of thousands of students who applied worldwide for the scientific expedition. Baldwin is the third Idaho student in as many years chosen to be a Student Argonaut. The JASON Project takes students on a yearlong educational program, which includes printed curriculum, Internet components, development material for teachers and a live two-week broadcast of an annual scientific research expedition. The INEEL and the Office of Naval Research sponsor JASON Idaho.

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